REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. Claims 10, 12 and 14-30 remain pending in the application. This application has been carefully reviewed in light of the Official Action mailed July 13, 2004. Applicant respectfully requests reconsideration and favorable action in this case.

Claim Objections

Claims 14-21 and 25-28 stand currently objected to as dependent upon a rejected base claim. Applicant thanks the Examiner for the allowable subject matter and will address the rejected base claims below.

Rejections under 35 U.S.C. § 103

Claims 10, 12, 23, 24 and 29 stand rejected as obvious over U.S. Patent No. 4,597,719 ("Tano") in view of U.S. Patent No. 4,023,592 ("Patzke"). Applicant respectfully traverses this rejection.

In order to establish a prima facie case of obviousness, the Examiner must show: that the prior art references teach or suggest all of the claim limitations and that there is some suggestion or motivation in the references (or within the knowledge of one of ordinary skill in the art) to modify or combine the references and that there is a reasonable expectation of success of such combination. M.P.E.P. 2142, 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). The Applicant respectfully points out that the Examiner has failed to establish a prima facie case of obviousness. More specifically, the Examiner has not shown that each of the claim limitations is present in the references, nor has the Examiner shown that the combination of references enjoys a reasonable expectation of success.

Independent Claim 10 - Not All Limitations Disclosed

Claim 10 recites a process for controlling a multistage pump to dispense a fluid, the multistage pump having a feed chamber, a dispensation chamber, and an outlet valve of the multistage pump coupled to the dispensation chamber, the process comprising: a first stage, wherein while a first valve between the feed chamber and the dispensation chamber is closed and the outlet valve is closed, the dispensation chamber is brought to an equilibrium pressure state; and a second stage, wherein a dispensation pump disposed in the dispensation chamber is activated to dispense the fluid through the outlet valve and onto an object upon opening the outlet valve and activating the dispensation pump.

Thus, Claim 10 recites a pumping apparatus for accurately controlling the amount of fluid dispensed from the apparatus, where during a first stage a first valve and the outlet valve remain closed while the dispensation chamber is brought to an equilibrium pressure state, and during a second stage a dispensation pump is activated to dispense fluid through the outlet valve and onto an object upon opening the outlet valve and activating the dispensation pump.

Tano

In contrast, Tano discloses a system for preventing any additional amount of liquid from dropping out the tip of a delivery pipe. Though the Examiner cites no specific section of Tano for this proposition, the Examiner asserts that Tano discloses a first stage wherein while a first valve is closed and a second valve closed, the pump chamber is brought to equilibrium and a second stage wherein a pump is activated to pump a fluid though the outlet pipe when the second valve is opened. Applicant respectfully disagrees with the Examiner's assessment.

Tano discloses a shut-off valve (20) disposed within first chamber (17) operable to close communicating passage (18) between first chamber (17) and second chamber (19). Suction element (21) is disposed within second chamber (19). (*see* Tano, Col. 2, Lines 52-61). Immediately after photoresist has been delivered by a metering and delivering pump through an outlet pipe (13), pressurized air is supplied into cylinder (26) forcing piston (22) downward such that shut-off valve (20) will close the communicating passage (18). (*see* Tano, Col 3, Lines 25-30) As piston (22) is moved downward, pressurized air is also supplied to cylinder (27) displacing suction element (21), increasing the volume of second chamber (19) and sucking photoresist back into second chamber (19) from outlet pipe (13). (*see* Tano, Col. 3, Lines 45-49)

Immediately before the metering and delivering pump is actuated, pipe (10) is opened to atmosphere, such that pressurized air is released from cylinder (26) to atmosphere and piston (22) is returned to its initial position, opening the shut-off valve (20). Additionally, the pressurized air within lower cylinder (27) will move to upper cylinder (26) returning suction element (21) to its initial position. Thus, cylinders (26) and (27) are brought to equilibrium, while shut-off valve (20) is simultaneously opened. (*see* Tano, Col. 3, Line 55-Col. 4, Line 5). Second chamber (19) cannot be at equilibrium, otherwise photoresist in pipe (5) would not be drawn back into second chamber (19), as a result of the increased volume of second chamber (19).

Because the suck-back pump of Tano brings cylinders (26) and (27) to equilibrium, not second chamber (19), and because shut-off valve (21) is open while cylinders (26) and (27) are brought to equilibrium, Tano does not disclose a first stage wherein while a first valve between the feed chamber and the dispensation chamber is closed and the outlet valve is closed, the dispensation chamber is brought to an equilibrium pressure stage, as recited in Claim 10.

Additionally because the suction element (21) of Tano is returned to its initial position immediately before the metering and delivering pump (4) is actuated, and metering and delivering pump (4) is located outside of second chamber (19), Tano also does not disclose a second stage, wherein a dispensation pump disposed in the dispensation chamber is activated to dispense fluid through the outlet valve and onto an object upon opening the outlet valve and activating the dispensation pump.

Patzke

The Examiner relies on Patzke for the element of an outlet valve, as recited by Claim 10. The outlet valve of Patzke is a valve between a chamber and a reservoir. When the chamber is pressurized the fluid is forced out of the chamber and through the outlet valve into a reservoir. Because the outlet valve of Patzke serves as a gate between a chamber and a reservoir within a pump (*see* Patzke, Col. 2, Lines 9-14) , the outlet valve of Patzke cannot serve as an outlet valve through which fluid is dispensed onto an object, as recited in Claim 10 and asserted by the Examiner.

No Expectation of Success

In order to establish a prima facie case of obviousness, the Examiner must also show that the combination of references enjoys a reasonable expectation of success. M.P.E.P. 2142, 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Applicant respectfully submits that there is no reasonable expectation of success in combining the Tano and Patzke references.

The Examiner relies on Patzke to disclose the limitation of "an outlet valve" as recited in Claim 10. Applicant respectfully submits that in doing so it appears the Examiner equates the outlet valve of Patzke with the second valve of Tano and is indirectly proposing that the outlet valve of Patzke can be substituted for the second valve of Tano. If this is not the case then Tano certainly cannot disclose a first stage, wherein while a first valve between the feed chamber and the dispensation is closed and the outlet valve is closed the dispensation chamber is brought to an equilibrium pressure stage, as asserted by the Examiner; as the Examiner admits that Tano does not disclose an outlet valve. However, combining the suck-back pump of Tano with the outlet valve of Patzke would render the suck-back pump of Tano inoperative.

The suction element (21) of Tano is disposed within second chamber (19) as a partition therewithin. When the suction element (21) is moved the volume of the partition changes. (*see* Tano Col. 2, Lines 57-61) In contrast, the outlet valve of Patzke opens on the pressure or downward or piston stroke, thereby causing ammonia flow from a chamber into a reservoir and an overflow system. (*see* Patzke Col. 2, Lines 8-13) Thus, if the outlet valve of Patzke were disposed in the second chamber (19) of Tano, liquid would not be sucked back into second chamber (19) preventing additional discharge of the photoresist, but would instead cause the liquid within second chamber (19) to flow back to a reservoir, such as tank (1) or first chamber (17). Consequently, substituting the outlet valve of Patzke for the second valve of Tano would render Tano inoperative for its intended purpose of preventing additional drops from falling out of a pipe after a predetermined amount of liquid has been fed out of the pipe.

As the Tano and Patzke references do not teach or suggest all of the claim limitations and there is no reasonable expectation of success in combining these references, Applicant respectfully submits that Claim 10 is not obvious and respectfully requests the withdrawal of the rejection of this claim.

Dependent Claim 12

As Claim 12 depends from independent Claim 10, Applicant respectfully submits that the arguments presented above with respect to Claim 10 apply equally well to Claim 12. Consequently, Applicant respectfully requests the withdrawal of the rejection of dependent Claim 12 as well.

Independent Claim 23 - Not All Limitations Disclosed

Claim 23 recites a process for controlling a multistage pump to dispense a fluid, the multistage pump having a feed chamber, a dispensation chamber, and an outlet valve of the multistage pump coupled to the dispensation chamber, the process comprising a first stage, wherein after the outlet valve is opened, a dispensation pump disposed in the dispensation chamber is activated to dispense the fluid through the outlet valve and onto an object.

Thus, Claim 23 recites a process where an outlet valve in a multistage pump is opened completely before the dispensation pump disposed in the dispensation pump is activated to dispense the fluid through the outlet valve and onto an object.

As noted above with respect to Claim 10, the suction element (21) of Tano is returned to its initial position immediately before the metering and delivering pump (4) is actuated, and metering and delivering pump (4) is located outside of second chamber (19). Therefore, Tano also does not disclose a first stage, wherein after the outlet valve is opened, a dispensation pump disposed in the dispensation chamber is activated to dispense the fluid through the outlet valve and onto an object.

No Expectation of Success

In order to establish a prima facie case of obviousness, the Examiner must also show that the combination of references enjoys a reasonable expectation of success. M.P.E.P. 2142, 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Applicant respectfully submits that there is no reasonable expectation of success in combining the Tano and Patzke references as described above with respect to Claim 10.

As the Tano and Patzke references do not teach or suggest all of the claim limitations and there is no reasonable expectation of success in combining these references, Applicant respectfully submits that Claim 23 is not obvious and respectfully requests the withdrawal of the rejection of this claim.

Dependent Claims 24 and 29

As Claims 24 and 29 depend from independent Claim 23, Applicant respectfully submits that the arguments presented above with respect to Claim 23 apply equally well to Claims 24 and 29. Consequently, Applicant respectfully requests the withdrawal of the rejection of dependent Claims 24 and 29 as well.

CONCLUSION

Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 10, 12 and 14-30. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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